



**Stem 431-J-15**

## Cooperative Research and Development Agreement With Levine-Fricke, Inc.

### *Biodetoxification of RCRA, Superfund and other Toxic Wastes Using Resources of Central Wastewater Treatment Plants*

#### Participants

This Cooperative Research and Development Agreement (CRADA) brings together Levine-Fricke, Inc., a California corporation, and the U.S. Environmental Protection Agency's (EPA) Risk Reduction Engineering Laboratory (RREL) in the Office of Environmental Engineering and Technology Demonstration, Office of Research and Development (ORD).

#### Purpose

To develop, demonstrate and commercialize the biodetoxification technology using appropriately designed biodetoxification systems for control and degradation of RCRA, CERCLA and other organic toxics in aqueous, gaseous and solid media.

#### Background

RREL possesses the scientific skills, "permitted" facilities, special equipment, information and know-how pertaining to biodetoxification technology to permit rapid development and pilot demonstration of the biodetoxification concept.

Technology and science available in the RREL to support development of the biodetoxification concept using appropriate resources from central treatment plants include:

- Biodegradation and inhibition protocols for experimentally assessing biotreatability.
- Expanded and fluidized-bed aerobic and anaerobic reactors (soils and aqueous wastes).
- Fixed film and suspended growth aerobic and anaerobic reactors (aqueous wastes).
- Slurry Reactors (soils).

Levine-Fricke, Inc., has experience in biodetoxification of chlorinated organic compounds, and the resources and marketing skills to promote the rapid introduction of the detoxification concept in the field.

The Agency's Test and Evaluation (T&E) facility in Cincinnati, OH, is located on the grounds of the Cincinnati Mill Creek Wastewater Treatment Plant. Wastewater and sludge streams from all operations in the Cincinnati plant are available within the T&E facility to meet the resource needs of the biodetoxification systems.

RREL will provide Levine-Fricke, Inc., exclusive access to and results from all research conducted by RREL relative to the use of resources from central wastewater treatment plants to enhance biodegradation of toxic organic compounds in facilities separate from the central wastewater treatment units.

#### Results

Bench-scale tests at the U.S. EPA in Cincinnati have resulted in the development of biotreatment of DDT in wastewater and in soils. The treatment strategy relies on the sequential use of anaerobic and aerobic microbial cultures. These cultures are readily available at central wastewater treatment plants from anaerobic digesters and activated sludge reactors. The next stage of this CRADA will be pilot-scale testing at the T&E facility.

This is one of more than 50 cooperative research and development agreements EPA has with various U.S. businesses, academic institutions and state and local governments under the Federal Technology Transfer Act of 1986. These agreements serve as a mechanism for the federal government to work with private industry and others to develop new pollution prevention and control technologies and efficiently bring them into the marketplace.

#### Contacts



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